ESTABLISHED 1817

Steel Carpenters' Squares

Eagle Square
Manufacturing Co.,

South Shaftsbury
Vermont

"A carpenter
is known
by his tools."

COMPLETE LINE

—OF—

STEEL SQUARES

MADE BY THE

EAGLE SQUARE MANUFACTURING CO.

SOUTH SHAFTSBURY
VERMONT.

WHAT THE SCALES
AND TABLES ARE
AND HOW TO USE
THEM. .. .. ..

We

Absolutely

Guarantee

Every

Square

Bearing this Trade Mark

To be the

BEST Square Made

INDEX

1817

In that year the Metal Carpenters' Square was invented by the founder of this company and since that year our factory has been in continuous operation.

Our Squares are made of a single piece of Special Analysis Steel, tough, springy and durable, on machines of our own design and manufacture that represent the best we know after more than 90 years of concentrated effort.

We are now and have always been equipped to make a more complete line of Squares, meeting every requirement of the carpenter, mason, stone cutter, or mechanic than any other Square maker in the United States.

All our squares are individually packed in anti-rust paper wrappers, put up in enameled paper-covered boxes containing one quarter-dozen squares, with which is packed a pamphlet describing the different measures and scales upon our squares.

Shipments are made in wooden cases containing four dozen.

Hardened Corners

Although our regular Standard Square will last a carpenter through his entire active life at carpentry, if the proper care is given to it, we find as a usual thing that it does not receive, in proportion, the attention that the edge tools receive; that its surface is sometimes permitted to become rusty, that it is sometimes dropped and that through long or more or less careless usage, the perfect angle of its corners is worn off.

We offered the first Galvanized Square overcoming the problem of rust and now the fact that all corners of all squares that we make are specially hardened, does away with the wear to the corners, which means that you can scribe a perfect right angle past the corner and in addition strengthens the structure of the steel at the point where it is most liable to strike it it falls, and by so strengthening it, reduces the possibility of the square being thrown out of a true right angle by any fall that it may sustain.

"EAGLE"

Take Down Square

A few reasons why it is the BEST :
The joint is the strongest part of the Square.

PERMANENTLY ACCURATE.

It locks to scale and stays there. The locking device is eccentric and can not wear loose. The only Square with this device.

No springs or latches to wear out or break.

SIMPLE, STRONG, DURABLE, CONVENIENT

T D 100, for marking, see page 16.....	31.00
T D 100, in all finishes, see page 16.....	36.00
T D 100 R, plain steel, extra for finishes....	36.00
T D 100 A, " " "	36.00

(Made in all finishes, see pages 11-12-13.)

We Make It { WE CHALLENGE COMPARISON / WE STAND BEHIND IT

New Octagon Rafter Square

No. 100 A.

(For sizes and markings see pages 16 and 17)

No. 100 A is a complete roof framing Square having on the face or trade mark side of the body the "EAGLE" patent rafter tables giving lengths of all Common Rafters, Jack, Hip, Valley and Cripple Rafters, and also all top, bottom and side cuts.

On the back side of body are similar tables for roofs on octogonal building with all cuts for several different polygons.

To meet the demand occasioned by the substitution of 1¾ inches for 2 inches scantling this Square is furnished in 1½ in. and 1¾ in. tongue.

Furnished in all finishes.

(See pages 11, 12, 13)

"EAGLE" Rafter Square

THE MOST CLEAN CUT
AND PRACTICAL SQUARE
ON THE MARKET. . . . . .

The only Framing Square made containing the Board Measure in addition to the Complete Framing Tables.

No. 100 R
No. 1 R
No. 3 R

Our patent rafter table with reference marks absolutely prevents mistakes in figuring or making cuts.

Finishes

PLAIN POLISHED STEEL

All of our polished squares are brought to a high finish on fine grade emery wheels. If they are wiped with an oily cloth before putting away after using, they will not rust and will remain serviceable for a life time.

We furnish all numbers with the graduations and figures filled with white, yellow, blue, red, or black enamel as may be ordered.

BLUED

We produced the first blued squares ever made in this country. The finish is a dark dull blue similar to gun metal. The figures and marks when filled with red, white, or yellow enamel are in striking contrast to the square. Specially adapted for work in dark places and can be easily read in the sunshine. It greatly reduces the eye strain.

(We will be pleased to quote prices on above finishes.)

Finishes

NICKEL PLATE

A handsome durable finish. Not readily affected by moisture or acids

NICKEL PLATE ON COPPER

By first plating the square with copper a ground is given for the nickel plate to which it will hold more firmly, doing away with the peeling of the nickel. The copper plate also preserves the steel from corrosion and gives a rust proof finish under the nickel plate.

GALVANIZED

We produced the first galvanized Square ever made in this country. The best finish for all around work, being *RUST PROOF.* We furnish galvanized squares filled with red enamel, making the figures and marks more easily read. This finish is particularly satisfactory for work on or near salt water.

(We will be pleased to quote prices on above finishes.)

Finishes

COPPER PLATE, OXIDIZED

This electro plated oxidized finish is dark blue with a high polish. Figures filled in red, white or yellow enamel. This finish is especially suited for work on or near salt water.

COPPER PLATE, PLAIN

Having a heavy coat of plain copper, suited for work on or near salt water. When the figures and graduations are filled with white enamel this makes a very attractive square.

ROYAL COPPER

This is a deep red finish, the figures being filled in white. It is obtained by a complicated and expensive process but adds durability and a very attractive appearance to the square. Our Squares have a heavy DOUBLE plate of copper.

This is a particularly hard finish and will not scratch or mar as the plain copper plate will, nor will it tarnish.

NOTE :—All of our copper finished squares have two heavy coats of copper plate.

(We will be pleased to quote prices on above finishes.)

EXPLANATION OF THE SYMBOLS

Used on pages 15, 16 and 17 to show how "EAGLE" Squares are graduated.

The face of the Square is the trade-marked side, the body is the larger member, the tongue the smaller.

FBO—Face of	Body,	Outside
FBI "	"	Inside
FTO "	Tongue,	Outside
FTI "	"	Inside
BBO—Back of	Body,	Outside
BBI "	"	Inside
BTO "	Tongue,	Outside
BTI "	"	Inside

SHIPPING WEIGHTS AND SIZES.

	CONTENTS	APPROXIMATE WEIGHT	SIZE
Two Foot,	2 doz.	72	5 x 20¾ x 29 Ins
"	3 "	97	6½ x 20¾ x 29 "
"	4 "	130	8 x 20¾ x 29 "
"	5 "	153	9 x 2[illegible]¾ x 29 "
Flat Steel,			
No. 21 & 22	8 "	145	8 x 14¼ x 28¼ "
" "	4 "	80	5 x 14¼ x 28¼ "
24 "	8 "	190	8 x 14¼ x 28¼ "
" "	4 "	61	5 x 14¼ x 28¼ "
Take Down,	4 "	140	6¾ x 17¼ x 26¾ "

NOTE: Cases containing two foot Squares with 16-inch tongues measure 18¾ inches wide, with 17-inch tongues measures 19¾ inches wide. Eighteen inch given in table above.

Twelve inch and 18-inch Squares are usually packed with two foot Squares. For shipping weight add 8½ pounds, and 14 pounds net per dozen, respectively, to the above weights.

POLISHED		SIZE IN INCHES			GRADUATION
Numbers	List per doz.	TONGUE Body	Wide	Long	FACE fbo fbl fto fti
*100	$37.00	2x24	1½ or 1¾	16&18	16 8 16 8
* 3	33.50	2x24	1½ or 1¾	16&18	16 4 16 4
14	30.00	2x24	1½ or 1¾	16&18	8 4 8 4
RAFTER SQUARES					
*100R	53.00	2x24	1½ or 1¾	16&18	16 8 16 8
* 3R	41.00	2x24	1½ or 1¾	16&18	16 4 16 4
OCTAGON RAFTER SQUARES					
*100A	60.00	2x24	1½	16&18	16 8 16 8
18 INCH SQUARES					
*18	30.00	1½x18	1	12	16 8 16 8
12 INCH SQUARES					
10	23.00	1½x12	1	8	8 4 8 4
*12	26.00	1½x12	1	8	16 8 16 8
MACHINIST					
40	14.00	1x6	¾	4	32 8 32 8
TAKE DOWN					
*100	31.00	2x24	1½	16&18	16 8 16 8
*100R	36.00	2x24	1½	16&18	16 8 16 8
*100A	36.00	2x24	1½	16&18	16 8 16 8

TAKE DOWN SQUARES ARE NOT MADE IN ROYAL COPPER

FLAT STEEL SQUARES					
22	18.00	1½x24	1	12	8 8
24	20.00	2x24	1½	12	8 8

		Net per doz.
Blued, with white or yellow figures	2 foot	$3 50
Galvanized, plain figures	2 foot	3 50
Galvanized, red figures	2 foot	4.00
Nickel plated on copper	2 foot	3.00
Royal Copper	2 foot	6.00

* Indicates that these numbers will be furnished in the varie

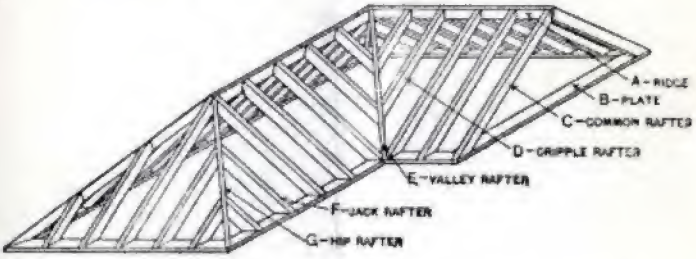
S TO INCH					HOW MARKED
	BACK				
	bbo	bbi	bto	bti	
..12	32	12	10		Brace, 100th Scale, 8 Square, Essex's Board Measure
..12	4	12	4		" " " "
..4		4	4		
..12	32	12	10		Rafter, Brace, 100th Scale, 8 Square, Board Measure
..12	4	12	4		" " " "
..12	32	12	10		Rafter, Octagon Framing, 100th Scale, 8 Square, Brace
..12	8	12	8		
..12	4	12	4		
..12	8	12	8		
..12	8	12	8		
..12	32	12	10		Brace, 100th Scale, 8 Square, Essex's Board Measure
..12	32	12	10		" " " Rafter "
..12	32	12	10		" " " " Octagon Framing
INISH					
.. 4		4			STEEL—From 1817 until about 1880 these squares were made of iron. Since 1880 all squares have been made of steel although the original name of iron has clung to them.
.. 4		4			

	Net Per doz
Blued, with white or yellow figures, 12 ins or less	$3.00
Galvanized, plain figures " "	3.00
Galvanized, red figures " "	3.50
Nickel plated on copper " "	2 50

us finishes at the extra net prices for finish only given above.

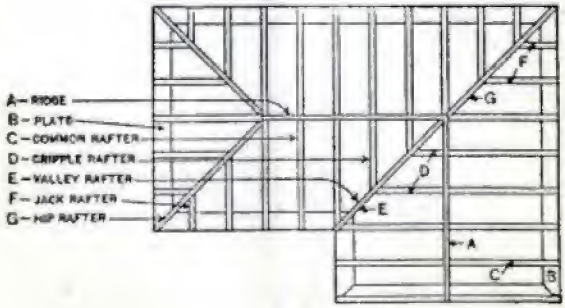
Roof Frame

Showing Different Kinds of Rafters



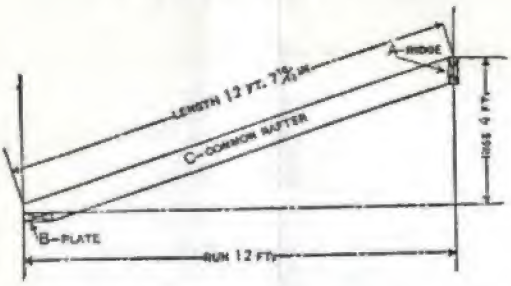
The illustration shows the frame of a roof, showing :

Ridge	A
Plate	B
Common Rafters . . .	C
Cripple Rafters	D
Valley Rafter	E
Jack Rafters	F
Hip Rafter	G



Plan of the roof frame shown above.

COMMON RAFTERS



The RISE of the roof is the distance found in following a plumb-line from a point on the central line of the top of the ridge to the level of the top of the plate.

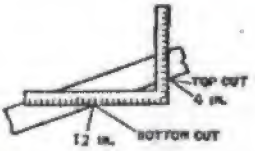
The RUN is the shortest horizontal distance from said plumb-line to the outer edge of the plate. The diagonal from this point on the plate to the nearest point in the central line of the top of the ridge is the length of the common rafter.

Because the rise must be measured at the central line of the roof, the run is always half the outside width of the building.

A roof of 4 feet rise on a building 24 feet wide is called a roof of 1-6 PITCH. This roof will have a run of 12 feet, or for each 12 inches of run, the rise is 4 inches.

We, therefore, have common pitches, 1-6 pitch or 12 to 4, 1-4 pitch or 12 to 6, and 1-3 pitch or 12 to 8, etc.

The rafter ends are cut to roof angles to rest respectively against ridge and plate. The cut against the ridge is called the TOP CUT or PLUMB CUT; the cut against the plate is called the BOTTOM CUT or HEEL CUT.

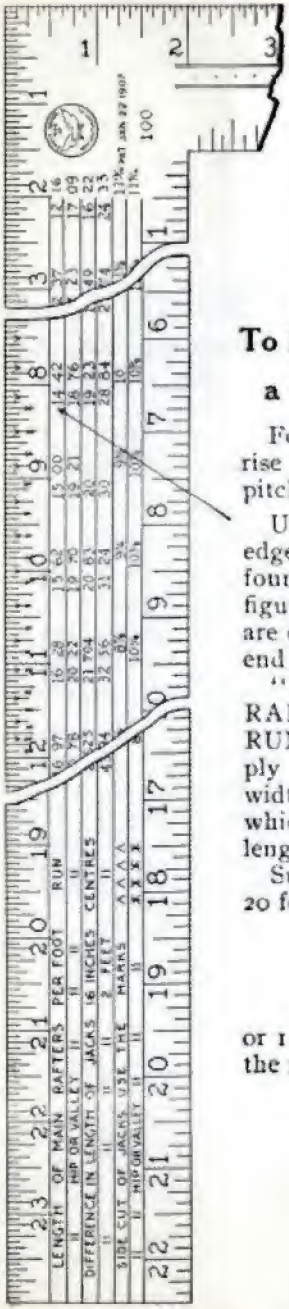


The rules given for finding TOP and BOTTOM CUTS are found by placing the square upon the rafter so that a portion of one arm of the square represents the run and a portion of the other arm represents the rise; for common rafters 12 and 4 for 1-6 pitch, 12 and 6 for 1-4 pitch, etc.

EAGLE RAFTER TABLE

Which is found on the face or trade marked side of the body of the Square is composed of six rows of figures which are lettered at the left end of the body to show their use. The figures found in these six rows refer to the outside edge graduations which in the case of the side cuts are clearly marked beyond all mistake by our marks.

The inch marks may represent inches or feet, and the twelfths may represent twelfths of an inch or twelfths of a foot as a scale. The edge marks represent the rise of a roof as 4 inches to the foot run called ⅙ pitch, or 6 inches to the foot run called ¼ pitch. After looking at the inch line figures on the outside and finding the figure that is the same as the rise of the roof, you will find underneath it a table giving the lengths of rafters and all side cuts. The run in every table is 1 foot. There are seventeen of these tables commencing at two inches and continuing to eighteen inches.



To Find the Length of a Common Rafter.

For a roof with an 8 inch rise to the foot run or ⅓ pitch.

Under the 8 on the upper edge of the square will be found a table and the first figures of the table which are designated at the left end of the body.

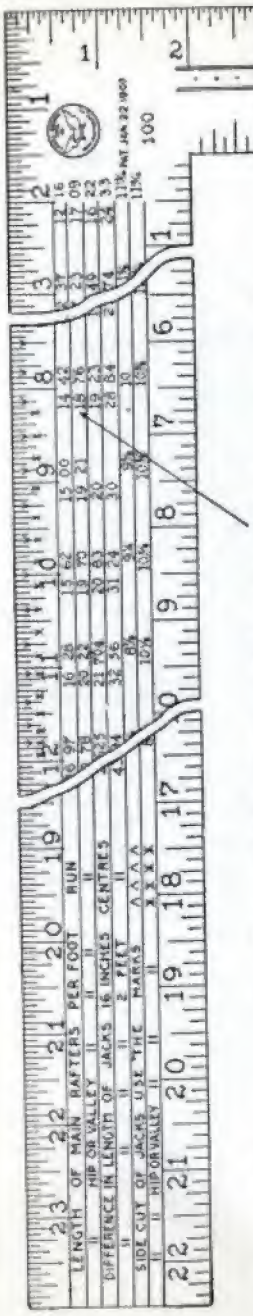
"LENGTH OF MAIN RAFTERS PER FOOT RUN" are 14.42. Multiply this by half of the width of the building which will give the whole length of the rafters.

Suppose the building is 20 feet wide,

14.42
10

144.20 inches

or 12.01 feet the length of the rafters,



To Find the Length of Hip and Valley Rafters

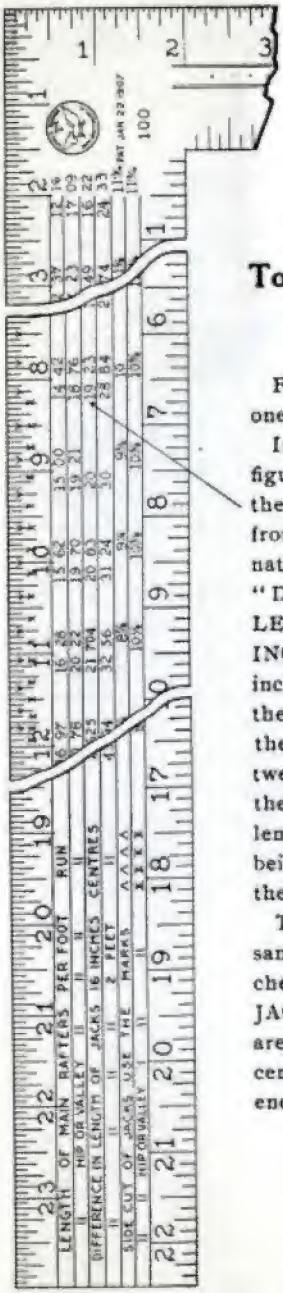
For a roof with 8 inch rise to the foot run or ⅓ pitch.

In the table found under the figure 8 on the upper edge of the Square in the second row designated at the left end of the body as "LENGTH OF HIP OR VALLEY RAFTER PER FOOT RUN" will be found 18.76, multiply this by half the width of the building which will give the whole length of the hip or valley rafter.

Suppose the building is 20 feet wide

18.76
10

187.60 inches or 15.63 feet, the length of the Hip or Valley Rafters.



To Find the Length of Jack Rafters.

For a roof with 8 inch rise to one foot run or ⅓ pitch.

In the table found under the figure 8 on the upper edge of the Square the third figure from the top in the row designated at left end of the body as "DIFFERENCE IN LENGTHS OF JACKS 16 INCH CENTERS" is 19.23 inches. This is the length of the first JACK RAFTER when they are spaced 16 inches between centers, and it is also the difference between the lengths of the others, each one being 19.23 inches longer than the one nearer the first one.

The fourth figure in the same 8 inch table or 28.84 inches is the length of the first JACK RAFTER when they are spaced 24 inches between centers, and is also the difference in length of the others.

TOP BOTTOM AND SIDE CUTS

For roof with 8 inch rise to one foot run or ⅓ pitch.

For *top* and *bottom cuts* of COMMON and JACK RAFTERS use the 8 inch and 12 inch marks on body and tongue, either way as most convenient The 8 inches is the vertical or top of rafter, the 12 inches is horizontal or bottom.

For HIP or VALLEY RAFTERS use 8 inches and 17 inches, proceeding as before.

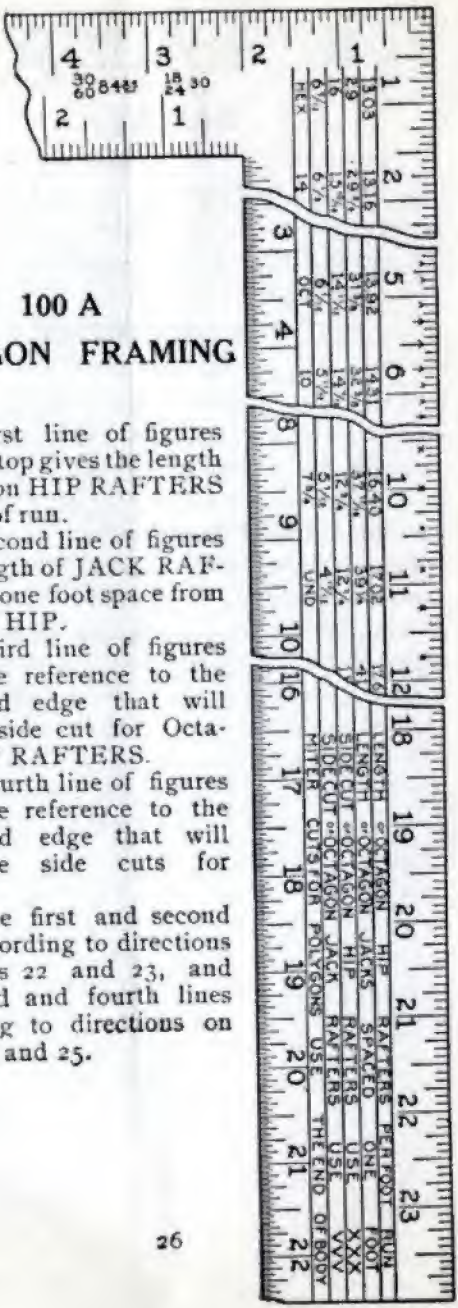
For SIDE CUTS on JACK RAFTERS use the fifth figure from the top in table under 8 inches on upper edge of Square. This is in this case 10 inches This refers to the graduation marks on the outside edge of the body. Place the 10 inch mark on the edge of the JACK and the 12 inch mark on the tongue on the same edge, mark along the outside of tongue for side cut of JACK RAFTER. This also gives the right angle to cut plancier and moulding on the jet that runs up the gable. The level plancier and moulding cuts can be marked on the body side or the references transposed using the 12 inch mark on the body and the reference given in the table on the tongue.

FOR SIDE CUTS ON HIP AND VALLEY RAFTERS.

Side cuts are marked by using the bottom figure in the table in the same way as to get the side cut of JACK RAFTERS.

PLEASE NOTICE

that the 12 inch mark on the tongue is always used in all angle cuts, both top and bottom and side cuts, thus leaving the workman but one number to remember when laying outside or angle cuts. This is the figure taken from the fifth or sixth number in the table. The side cuts come always on the right hand or tongue side on rafters. When marking boards these can be reversed for convenience at any time by taking the 12 inch mark on the body and using the references on the tongue.



100 A
OCTAGON FRAMING

The first line of figures from the top gives the length of Octagon HIP RAFTERS per foot of run.

The second line of figures gives length of JACK RAFTER for one foot space from Octagon HIP.

The third line of figures gives the reference to the graduated edge that will give the side cut for Octagon HIP RAFTERS.

The fourth line of figures gives the reference to the graduated edge that will give the side cuts for JACKS.

Use the first and second lines according to directions on pages 22 and 23, and the third and fourth lines according to directions on pages 24 and 25.

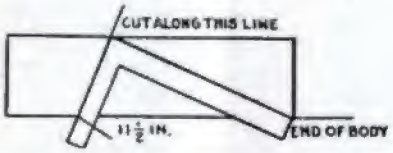
100A OCTAGON FRAMING ANGLE CUTS FOR POLYGONS

The bottom row of figures gives the bevel of intersecting lines of various regular polygons.

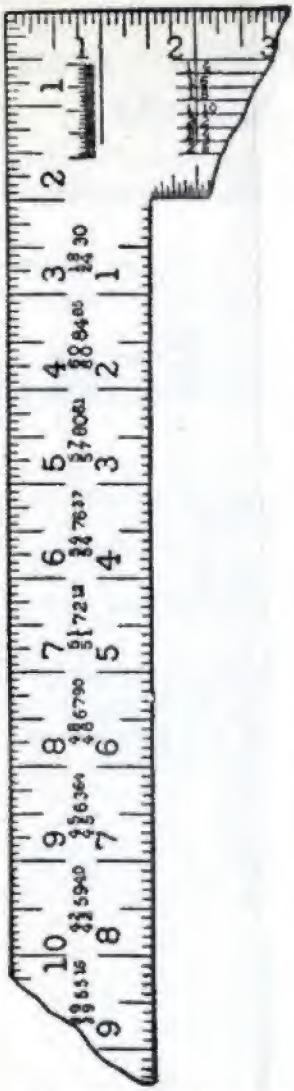
It is used as follows:

NOTE—At the right end of body on the bottom line may be read Mitre Cuts for Polygons—USE END OF BODY.

For figure of seven even sides to the right of the word HEP on the Square will be found the number 11½.



Saw seven pieces of equal length having this angle cut at each end and the pieces will fit together to make a seven sided figure in size depending on the length of the pieces.



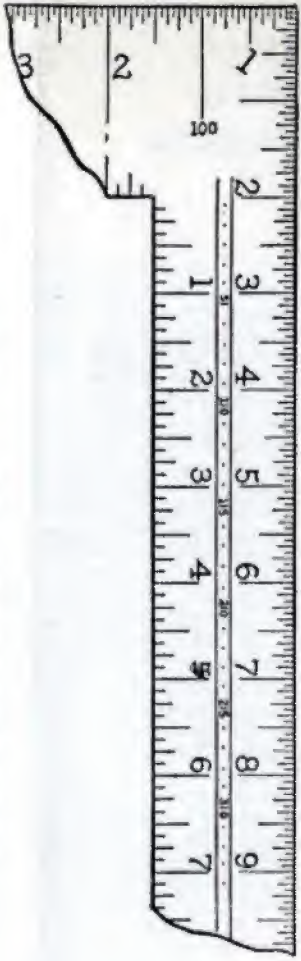
BRACE MEASURE

On the same side of the Square having the board measure, will be found the Brace Measure. $\frac{39}{39}$ 55.16 means that with a run of 39 inches each way the length of brace is 55.16 inches. $\frac{18}{24}$ 30. is 18 inches run one way and 24 inches run the other way, length of brace is 30 inches.

The best way to find length of brace for runs not given on Square is to multiply length of run by 1.4142 feet, or 16.97 inches. This rule applies only when the rise and run are equal and the angle right.

HUNDREDTH SCALE

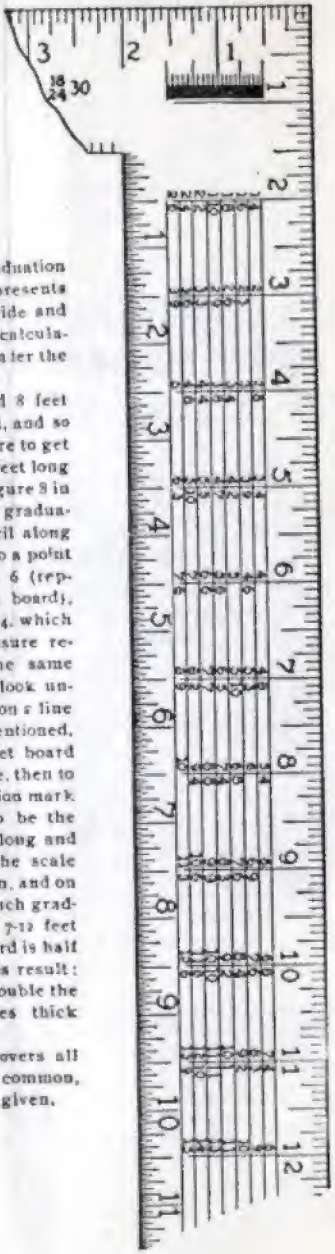
There is one inch graduated into one hundred parts, sub-divided into twenty parts, that will be found convenient when using the brace and rafter measures, where decimal fractions occur. This is located in the corner near the brace measure.



OCTAGON EIGHT SQUARE SCALE.

This scale is on the face side of the tongue, and is for laying out an eight square on a square stick of timber. Suppose the timber is 8 inches square. Take the eight mark from o in your divider, and lay off from each side of the centre line on each of the four sides of the timber, work off the corners up to these lines.

ESSEX BOARD MEASURE.



The figure 12 in the graduation marks on the outer edge represents a one-inch board 12 inches wide and is the starting point for all calculations; the smaller figures under the 12 represent the length.

A board 12 inches wide and 8 feet long measures 8 square feet, and so on down the table. Therefore to get the square feet of a board 8 feet long and 6 inches wide find the figure 8 in the scale under the 12 inch graduation mark and pass the pencil along to the left on the same line to a point below the graduation mark 6 (representing the width of the board), and you stop on the scale at 4, which is four feet, the board measure required. If the board is the same length and 10 inches wide, look under the graduation mark 10 on a line with the figure 8 before mentioned, and you find 6 and 8-12 feet board measure. If 18 inches wide, then to the right under the graduation mark 18, and 12 feet is found to be the board measure. If 13 feet long and 7 inches wide, find 13 in the scale under the 12 inch graduation, and on the same line under the 7 inch graduation, will be found 7 and 7-12 feet board measure. If the board is half this length, take half of this result: if double this length then double the result. For stuff 2 inches thick double the figures.

In this way the scale covers all lengths of boards, the most common, from 8 feet to 15 feet, being given.

"SINCE 1817 THE

STANDARD OF PERFECTION

HAS ALWAYS BEEN

AN

EAGLE

SQUARE"